# 3.0 Existing Parking Conditions

## 3.1 Parking Inventory

The first task of the current study was to conduct a parking inventory of the study area. KM completed this task on March 6th, 2003. Table 2 shows the inventory, as compared to the same area in the 2000 inventory.

**Table 2-East Downtown Parking Supply**

| | Actual Parking Supply | | | |
|---|---|---|---|---|
| | On-Street | Off-Street | | Total |
| Year | | Public | Private/Patron | |
| 2003 | 726 | 0 | 3,611 | 4,337 |
| 2000 | 694 | 0 | 3,582 | 4,276 |

Table 2 shows that there has been an increase of approximately 61 stalls since the previous study. Of these, 32 were on-street spaces, while 29 were private spaces. The changes were due primarily to the remarking of parking stalls, and the addition of loading zones. No major supply changes occurred within the study area, since the previous study. Table 2 highlights the lack of off-street public parking spaces within the study area. A block-by block inventory of the East Downtown area can be seen in Figure 3 and is also included in the Appendix

## 3.2 Existing Parking Demand

The following section identifies the current parking demand, including the effects of the state legislature and events at the Pershing Center. March 13, 2003 was chosen to conduct the parking demand counts. This day was chosen because the Nebraska State Legislature was in session and Pershing Center was hosting the Nebraska Boys State Basketball Tournament, creating what could be considered a peak weekday daytime parking demand. Interviews were also conducted of persons entering Pershing Center. From this, the demand due to the state basketball tournament could be identified to obtain a typical parking demand without a major Pershing Event.

Separate parking demand counts were also completed for the Pershing Center Area on Friday evening, April 11th, 2003, to determine what effects an arena football event at Pershing Center has on parking patterns during evening periods.

### 3.2.1 East Downtown Study Area

The parking occupancies in the East Downtown area were taken on March 13, 2003 by KM employees and members of the University of Nebraska-Lincoln Student Chapter of the Institute of Transportation Engineers (ITE). The number of occupied parking spaces were recorded at 5 separate time periods. These periods were at 10:30 AM, 11:30 AM, 12:30 PM, 1:30 PM, and 2:30 PM. Figure 4 shows a block-by-block distribution of the East Downtown area peak parking demand. The results can also be seen in Table 3, compared to the 2001 study, and in the Appendix.

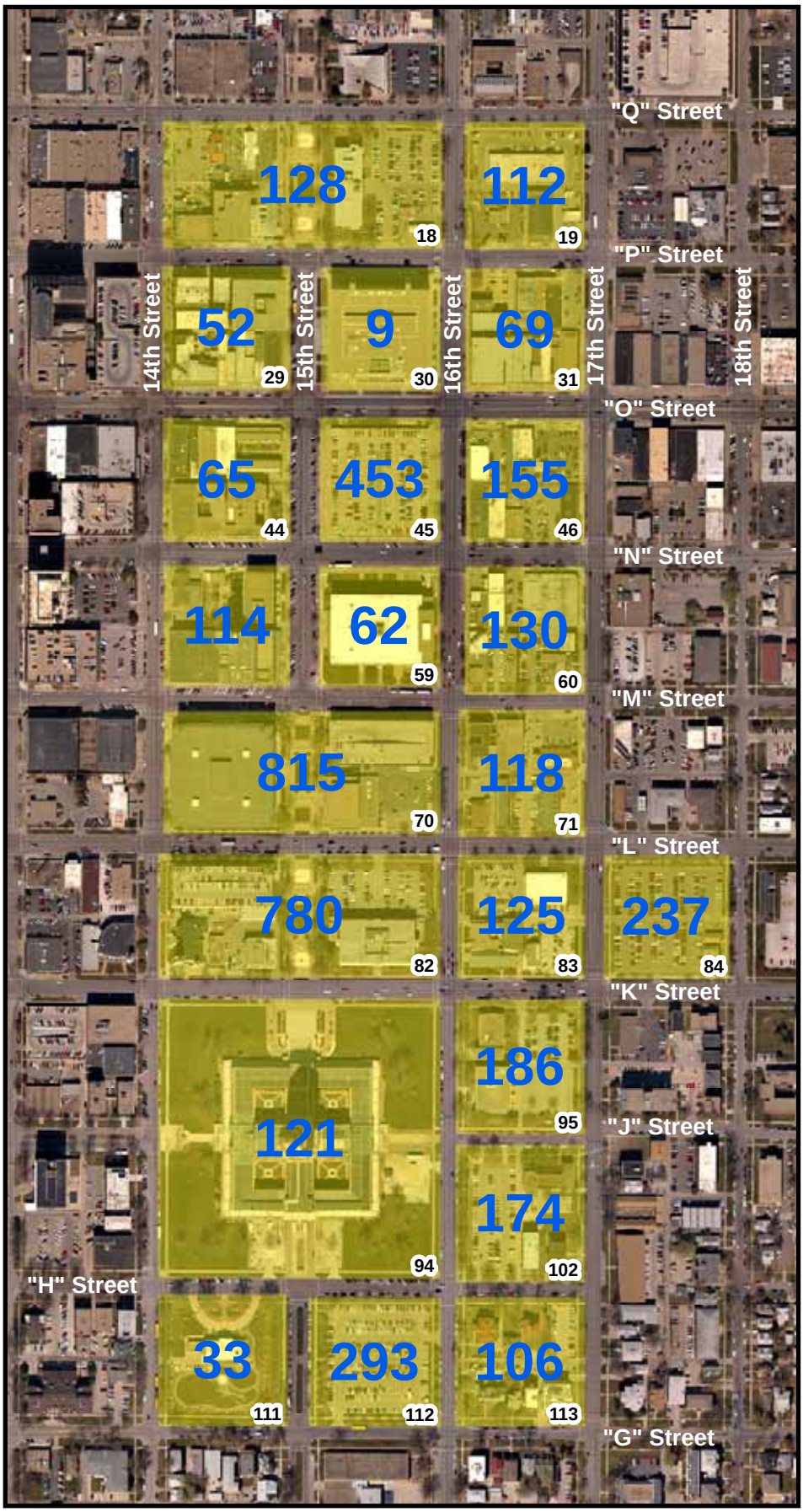



**Figure 3**
**East Downtown**
**Parking Inventory (4,337)**

KIRKHAM MICHAEL

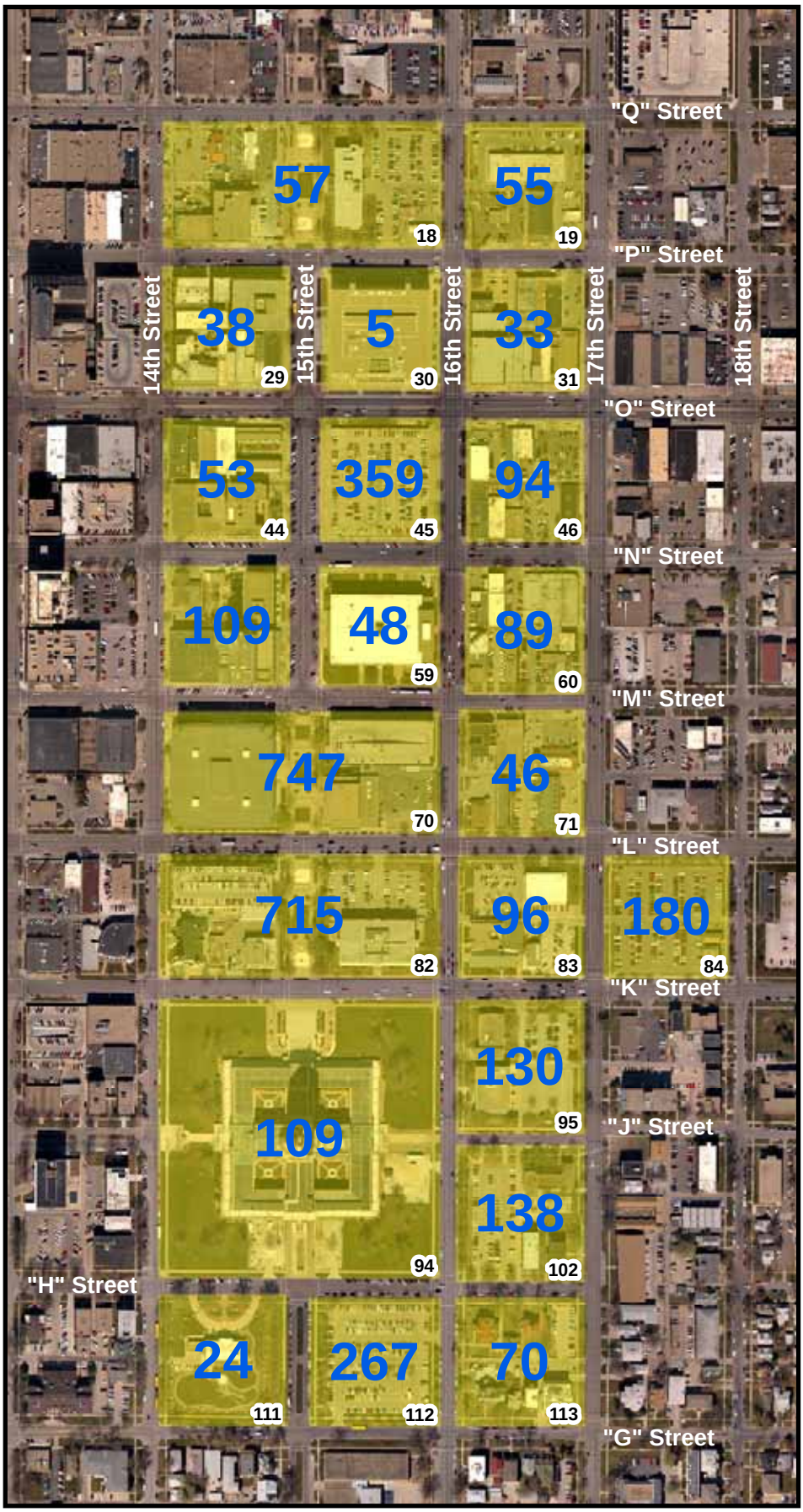



**Figure 4**
**East Downtown**
**Parking Demand (3,462)**

KIRKHAM MICHAEL

**Table 3-East Downtown Parking Demand**

| | Total Number of Occupied Stalls | | | | |
|---|---|---|---|---|---|
| **Year** | **10:30 AM** | **11:30 PM** | **12:30 PM** | **1:30 PM** | **2:30 PM** |
| 2003 | **3,462** | 3,414 | 3,331 | 3,411 | 3,382 |
| 2000 | 3,181 | | 3,048 | | 3,121 |

As shown in Table 3, the peak parking demand occurred at 10:30 AM, when 3,462 vehicles were parked in the study area. Demand throughout the study period was fairly constant, with the lowest demand of 3,331 vehicles being only 131 vehicles less than the highest demand. The peak demand was then compared to the parking supply in each block, to determine the surplus or deficiency within a given block. This can be seen in Figure 5.

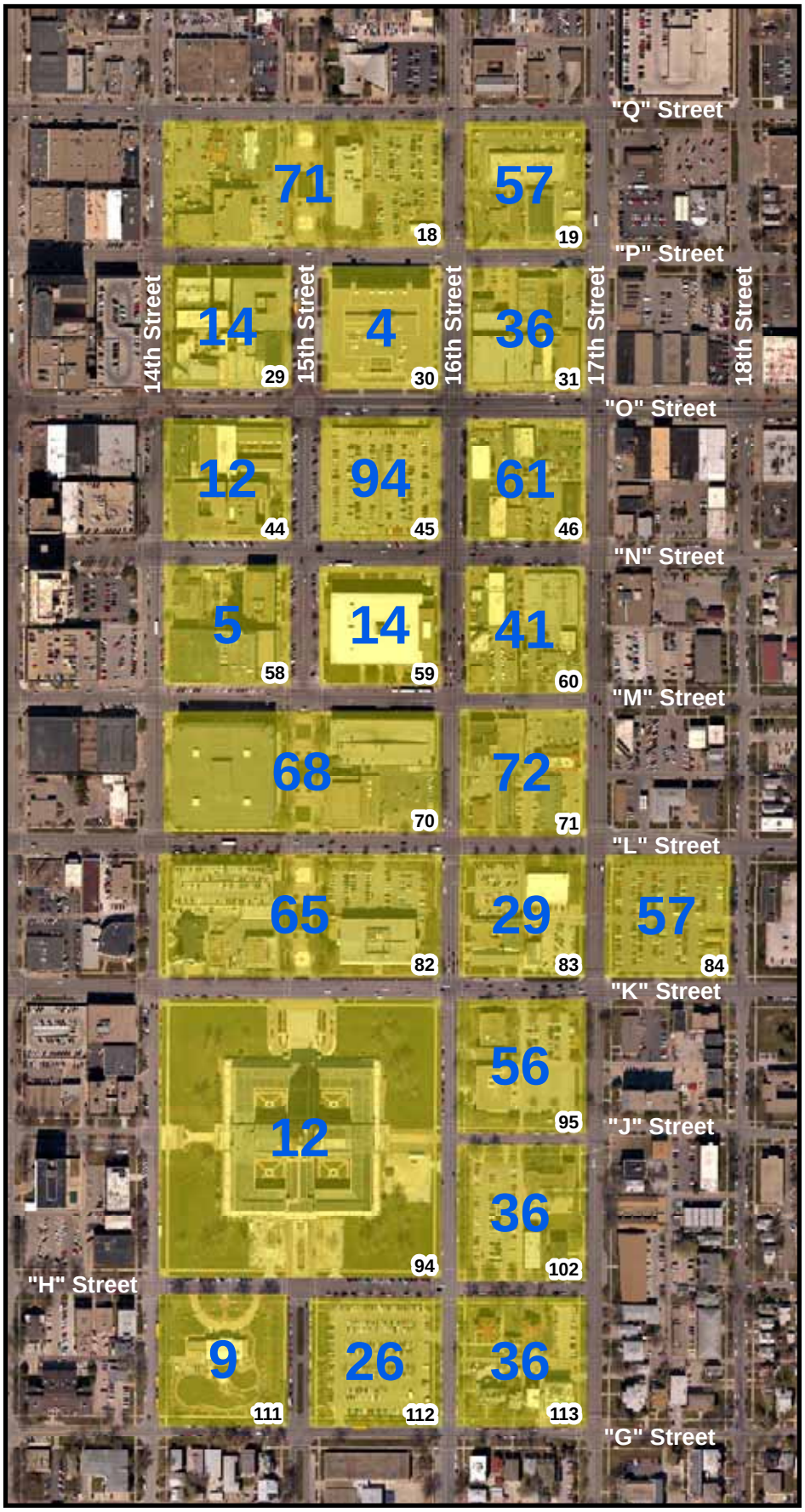
The peak demand of 3,462 vehicles was 281 vehicles higher than the peak demand found during the 2001 Downtown Lincoln Parking Study. The difference is attributed to the state basketball tournament being held at Pershing Center. Since the 2001 study did not include an event at Pershing Auditorium, it would appear that the increase in demand within the study boundaries due to the state basketball tournament was approximately 280 vehicles. Further discussion on this subject is included in detail in Section 3.4.2.

## *3.3 Adjusted Parking Supply*

It is not reasonable to assume that all of the parking spaces shown in Figure 5 are available to the general public. Many of the spaces are restricted, such as those reserved for disabled persons or private stalls limited to employees or customers of a specific business. In order to determine the actual number of available spaces to the general public, it was necessary to examine each parking facility individually and determine whether it provides public parking or private/patron parking. Empty spaces reserved for disabled persons or spaces located in Private/Patron parking lots could then be identified and discounted as surplus parking, even though they were empty.

It is also not practical to assume the capacity of on-street or off-street public parking is 100%. The general industry standard for capacity of a public parking facility is 90%. Therefore, each of the on-street block faces and the off-street public parking lots where assumed to have a practical capacity of 90% of the physical parking supply.

A block by block distribution of the adjusted surpluses and deficiencies is shown in Figure 6, while the adjusted parking supply is summarized in Table 4. A detailed breakdown of the parking supply adjustments is contained in the Appendix.




*Unadjusted surpluses/deficiencies are determined using the raw numbers of spaces and parkers observed in each block of the study area.

**Figure 5**
**East Downtown**
***Unadjusted*** Surpluses/Deficiencies (+875)*

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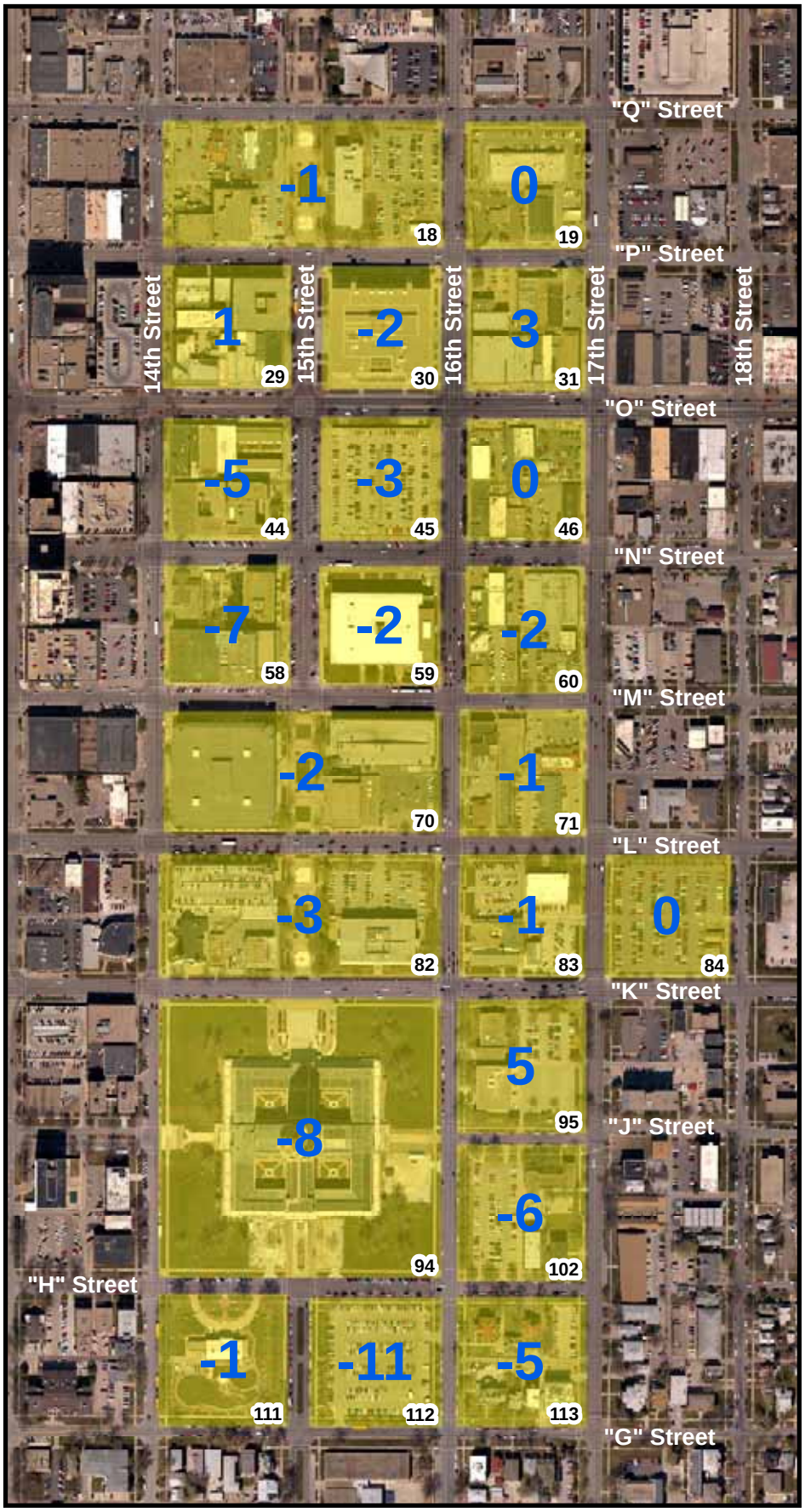



*Adjusted surpluses/deficiencies adjusts the supply to discount stalls not available to the general public and reduces the public supply to 90%.

**Figure 6**
**East Downtown**
***Adjusted*** Surpluses/Deficiencies (-51)*

KIRKHAM MICHAEL

**Table 4-East Downtown Adjusted Parking Supply**

| Year | On-Street | Off-Street | | Total Supply | Total Demand | Adjusted Surplus/Deficiencies |
|---|---|---|---|---|---|---|
| | | Public | Private/Patron | | | |
| 2003 | 600 | 0 | 2,811 | 3,411 | 3,462 | -51 |
| 2000 | 597 | 0 | 2,657 | 3,254 | 3,181 | +73 |

As shown in Table 4, the adjusted supply increased by 157 spaces, while the demand increased by 281 parkers. This results in a total adjusted deficiency of 51 spaces.

### 3.3.1 Parking Demand Adjustments

The following sections discuss several major factors that affect the parking demand in the study area.

#### A – Pershing Center Survey

To determine the effects that the state basketball tournament had on the area supply, surveys were conducted of patrons entering the tournament. These surveys were conducted during the peak entering times of 10:30 to 11:30 AM and from 12:30 to 1:30 PM by KM staff and ITE volunteers. The survey included several questions to determine how attendees traveled to the game, how many people accompanied them, where they parked, and how they felt about parking around Pershing Center. A summary of the responses can be found below, while a sample survey form can be found in the Appendix.

**East Downtown Lincoln – Pershing Center Survey**

**1. Type of Travel**

| Type | Number of Responses | Average Group Size | Total Arriving | % | Projected Number* |
|---|---|---|---|---|---|
| Car/Pick-Up/Van/SUV | 402 | 3.1 | 1,250 | 84.4% | 2,638 |
| Walk | 10 | 3.0 | 30 | 2.0% | 63 |
| Bus | 6 | 33.1 | 199 | 13.4% | 419 |
| Other | 3 | 1.0 | 3 | 0.2% | 6 |

*Based on attendance of 3,126

**2. Vehicle Occupancy**

Overall Average Passenger Vehicle Occupancy *3.11*

**3. Parking Location**

*138 (34.3%)* - Inside Study Area *264 (65.7%)* - Outside Study Area

**4. Parking Comments**

*271 (66.4%)* - Poor *109 (26.7%)* - Adequate *6 (1.5%)* - Convenient *22 (5.4%)* - Other

The responses shown above were further examined to determine the number of vehicles parked within the study area, due to the event at Pershing Center. It was found that approximately 84% of the attendees arrived by Car, Pick-Up, Van, or SUV (Passenger Vehicles). Based on an attendance of 3,126 provided by Pershing staff, 2,638 attendees would have arrived in passenger vehicles. Based on the average passenger vehicle occupancy of 3.11, it is projected that approximately 848 vehicles were parked within the downtown area. Of those, 34.3% or 293 attendees parked within the study area, due to the event at Pershing Center. The remaining attendees parked in facilities outside the study area and walked an average of 2.7 blocks to Pershing Center.

To determine the area's peak parking demand without an event at Pershing Center, the 293 vehicles was subtracted from the peak demand of 3,462 vehicles. This results in a peak demand of 3,169, without an event at Pershing Center. This compares favorably to the peak demand of 3,181 found in the 2001 study.

Although the Nebraska Boy's State Basketball Tournament represents a high attendance event at Pershing Center, it would not be financially feasible to design adequate parking for such an infrequent event. Therefore, further examination is required to determine a "design" event, for weekday daytime Pershing Center parking needs. Figure 7 provides the attendance history of weekday daytime events at Pershing Center for a one-year period, as provided by Pershing Center management.

*Figure 7-Pershing Center Weekday Event Summary (1 Year)*

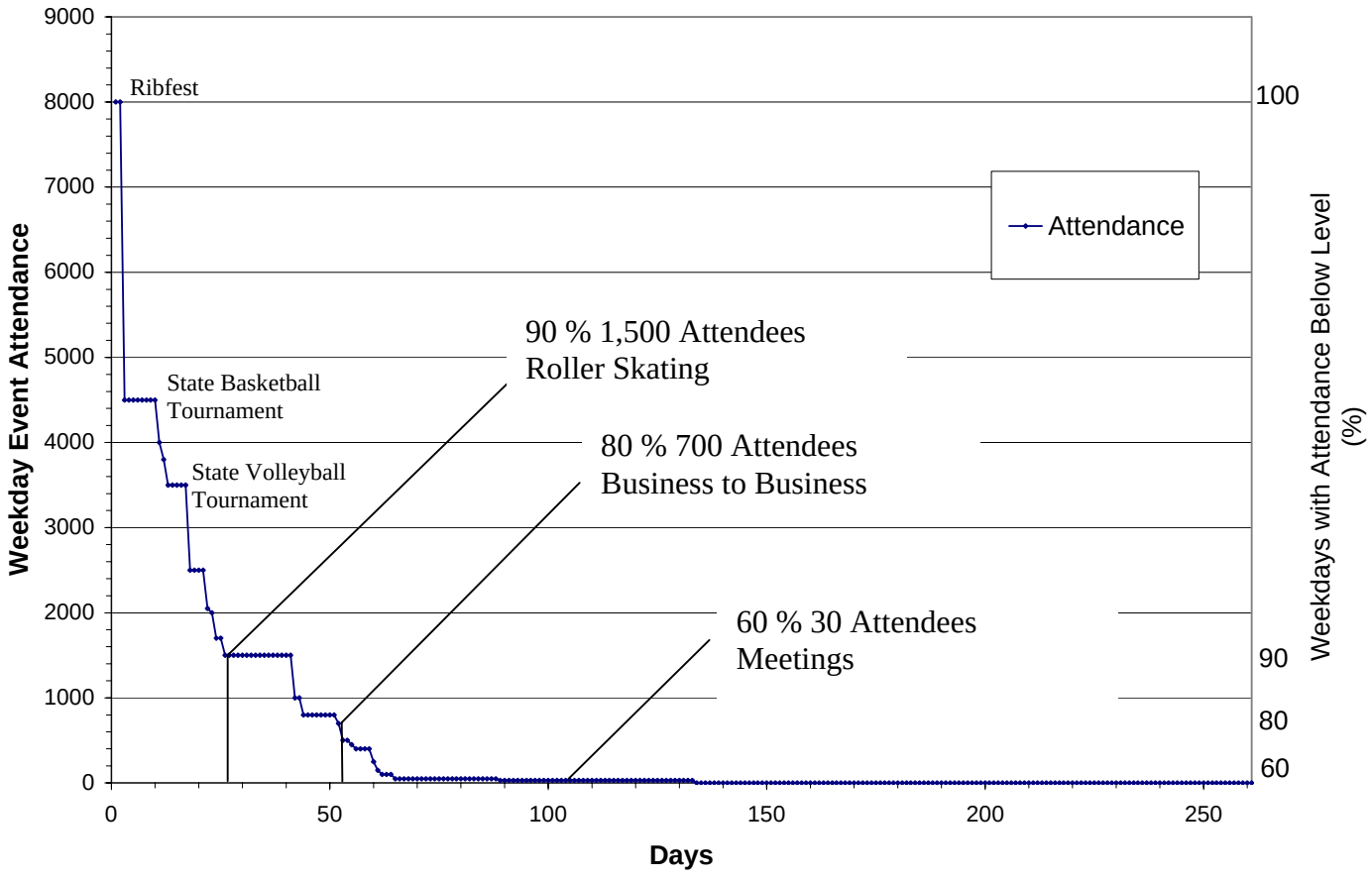


Figure 7 highlights various attendance levels for Pershing Center. To determine the appropriate parking design level, it is necessary to balance the various parking demands with the ability to cover the cost of the additional parking. Figure 7 shows that 60% of the weekdays have events with 30 or fewer attendees, 80% of the weekdays have events with 700 or fewer attendees, and 90% of the weekdays have events with 1,500 or fewer attendees.

The cost to construct structured parking now regularly exceeds $10,000 per space in downtown Lincoln. Assuming parking revenues of $10 per space per day ($5/parker x 2 turnovers) for event parking, it would require 1,000 revenue days to cover the construction costs for peak event parking. This translates to a 10-year payback at two events per week utilizing the parking, a 20-year payback at one event per week, and a 40-year payback if only one event every two weeks has need for the parking.

The difference between the 90$^{th}$ percentile (1,500 attendees) and 80$^{th}$ percentile (700 attendees) represents the difference between one event per week and one event every two weeks. Using previously established auto occupancy rates, the 800 difference in attendees is equivalent to 216 vehicles. The payback for the additional 216 spaces would be approximately 40 years.

It should be noted that eleven of the 26 days between the 80$^{th}$ and 90$^{th}$ percentile levels are National Roller Skating Championships, which are regularly scheduled during the summer months. Since UNL and the State Legislature were not in session at that time, the demand in the area is several hundred spaces less than other times of the year. Therefore, it is recommended that a design level of 80% (700 attendees) and 190 spaces be utilized for Pershing Center.

In addition to studying weekday daytime events, separate parking demand counts were conducted to determine the effects of an event at Pershing Center during evening and weekend periods. The additional times surveyed were on Friday, April 11, 2003 at 5:30 PM and 7:30 PM. These times were chosen to determine the effect that a 7:05 PM football game at Pershing Auditorium, between the Lincoln Capitols and Omaha Beef, would have on the area parking supply. The Lincoln Thunder basketball team also regularly plays evening games at Pershing Auditorium, however there is usually lower parking demand due to lower attendance.

The results, shown in Table 5, indicate that the evening demand is well below the peak daytime demand. The additional demand is satisfied by the available parking in facilities such as the federal and state garages, which are operated as public parking during periods of low employee demand. A block by block distribution of the parking demand can be seen in the Appendix.

**Table 5-Pershing Evening Demand**

| | On-Street | Off-Street | | Total |
|---|---|---|---|---|
| | | Public | Private | |
| Supply | 746 | 294 | 4,684 | 5,724 |
| 5:30 Demand | 466 | 38 | 934 | 1,438 |
| 7:30 Demand | 588 | 149 | 1,164 | 1,901 |

## B – State Employee Survey

Surveys were distributed to all state employees working in the downtown area. This survey was distributed through the State Building Division to determine the parking needs of the state office buildings.

Of the 3,998 state employees located in downtown Lincoln, 1,542 returned completed surveys. From the responses provided by the state employees, it was found that approximately 1,396 (90.5%) drove passenger vehicles to work. Of the employees working in the study area, 1,229 (36%) returned completed surveys. The surveys showed that 940 (76.5%) park inside the study area, while 289 (23.5%) park outside the study area. Of the employees working outside the study area, 167 (71%) returned completed surveys. The surveys showed that 75 (44.9%) park inside the study area, while 92 (55.1%) park outside the study area.

When expanding these numbers to the total of 3,614 employees that drive passenger vehicles to work, it was projected that 795 employees work inside but park outside of the study area, while 105 employees work outside while parking inside of the study area. This results in a net parking demand for 690 employees. Table 6 provides a summary of the results.

**Table 6-State Survey Summary**

| Work Location | Parking Location | # of Responses | % | Projected Driver Number | Projected Vehicles (.63*Drivers) |
|---|---|---|---|---|---|
| Work Inside Area | Park Inside Area | 940 | 76.5% | 2,585 | 1,629 |
| | Park Outside Area | 289 | 23.5% | 795 | 501 |
| **Subtotal** | | **1,229** | **100%** | **3,380** | **2,130** |
| Work Outside Area | Park Inside Area | 75 | 44.9% | 105 | 66 |
| | Park Outside Area | 92 | 55.1% | 129 | 81 |
| **Subtotal** | | **167** | **100%** | **234** | **147** |
| | **Total** | **1,396** | | **3,614** | **2,277** |

The survey thus indicated that a net parking demand for 690 employees was not identified during the parking demand counts. The State Building Division typically finds that 20-25% of the employees assigned to various facilities are not parked due to illness, vacation, and travel. This, combined with parking demand counts of state facilities, indicated that an additional 12-20% are not parked, due to use of their vehicle throughout the day. Therefore, a conservative estimate is that 435 vehicles with destinations in the study area were not identified during the parking demand counts in the study area.

The state employee survey also included questions regarding specific parking locations, parking costs, and employee parking preferences. A sample of the state employee survey, along with a detailed summary of the findings, can be found in the Appendix.

A separate cordon study was also performed in the area around the State Capitol. This independent study was conducted to verify the number of State Capitol employees parking on-street outside of the area and walking to the State Capitol. To determine the frequency of this occurrence, counts of the number of drivers parking their vehicles outside of the study area and walking into the study area were taken between the hours of 7:00 and 8:00 AM on Thursday March 13, 2003. These counts were taken at 4 locations surrounding the State Capitol. Table 7 shows the results of the counts.

**Table 7-External Demand**

| Location | Number of Drivers Parking Outside the Study Area |
|---|---|
| "H" Street and 14th Street | 53 |
| "G" Street and 15th Street | 42 |
| "G" Street and 16th Street | 24 |
| "J" Street and 17th Street | 23 |
| **TOTAL** | **142** |

As shown in Table 7, 142 drivers were seen parking outside of the study area and walking to the state capitol. Responses from the state employee survey showed similar results, with 138 state capitol employees parking on-street outside of the study area.

### C – Federal Employee Survey

A survey was also distributed to federal employees, located in the Federal Building. Of the 850 employees located in the Federal Building, 128 (15%) returned completed surveys. It was found that 122 (95%) drove passenger vehicles to work. Of the drivers surveyed, 58 (47%) indicated that they parked outside of the study area. After expanding this to the total of 850 employees, it is projected that 385 park outside of the study area. Parking demand counts of the federal parking garage indicated that approximately 25% of those assigned to the garage were not parked, due to illness, vacation, and travel. Applying this factor to the projected 385 vehicles parking outside of the area, it is expected that an additional demand of 289 vehicles were not identified during the original parking demand counts in the study area. Many of these are thought to be parking on-street east of 17th Street where there are no meters or time limits. The anticipated loss of on-street parking in this area due to the Antelope Valley project will significantly impact these parkers.

A sample of the federal employee survey, along with a summary of the findings, can be found in the Appendix.

### D – Children's Museum Survey

A parking survey was distributed to patrons at 3 separate time periods on a typical weekday morning, a typical weekday evening, and weekend to determine the parking needs for the Lincoln Children's Museum. The results of the typical weekday morning surveys were evaluated further to correspond with the overall peak parking demand of 10:30 AM.

Discussions with Children's Museum staff indicated that during a typical weekday approximately 480 vehicles are attributed to the Children's Museum. Of those, 240 or approximately 50% arrive during the morning period. It was found that of the 91 surveys collected during the morning period, 47 (51%) of the patrons parked outside of the study area. It was also found that 56 (62%) of the weekday morning patrons parked before the 10:30 peak period. Applying the survey results to the provided attendance numbers, it is projected that a parking demand of approximately 75 vehicles was being satisfied outside of the study area, during the peak period of 10:30 AM.

Table 8 summarizes the adjustments made to the parking demand.

**Table 8-Parking Demand Adjustments**

| | |
|---|---|
| **Peak Parking Demand Inside Study Area** (Without Basketball Tournament) | **3,169** |
| Pershing Center Adjustments (+) | 190 |
| State Adjustments (+) | 435 |
| Federal Adjustments (+) | 289 |
| Children's Museum Adjustments (+) | 75 |
| **Net Parking Demand** | **4,158** |

## *3.4 Parking Demand By Destination*

Figure 6 reflects where persons currently park, not where they would like to park. In order to better identify the destinations of parkers in the study area, without interviewing each parker, the study area employment and occupied commercial floor area by block were used. The employment and occupied commercial/service floor areas were provided by the Downtown Lincoln Association (DLA). The distribution of 6,942 area employees can be seen in Figure 8, while the distribution of approximately 2,513,000 $ft^2$ of occupied floor areas can be seen in Figure 9.

In addition to the employment and occupied commercial/service floor areas, residential dwelling units also serve as a generator of parking demand. Therefore, the 193 dwelling units within the area were identified and included as long term generators.

The peak parking demand of 3,169 (excluding a Pershing Center event) vehicles was split between long term (79%) and short term (21%) demand based upon sample counts of on-street and off-street facilities. For the purposes of this study, long-term demand was defined as three hours or greater. The split can be seen in Table 9.

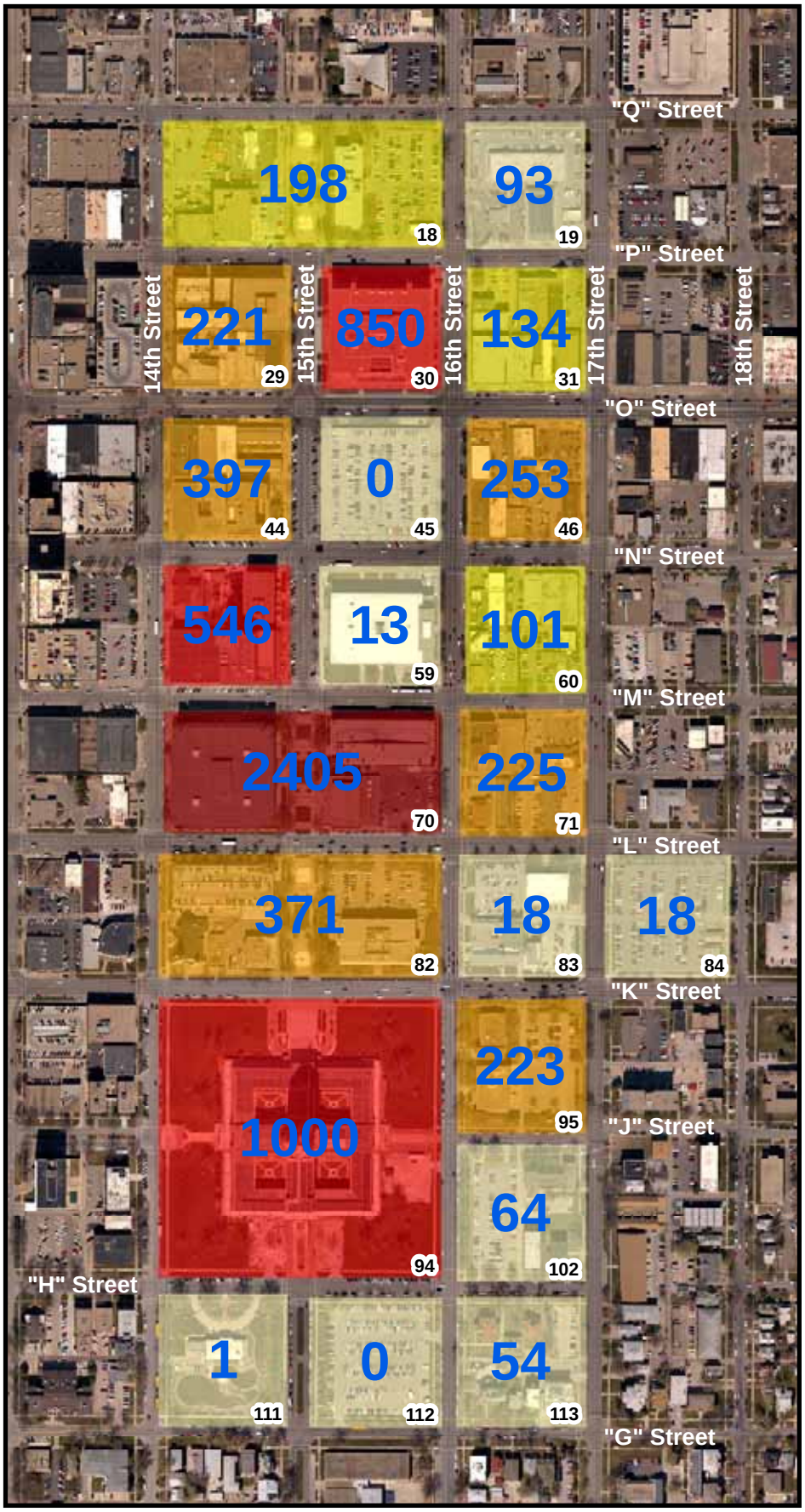
**Table 9-Long-Term/Short-Term Split**

| Time Parked | Demand | | |
|---|---|---|---|
| | Excluding Pershing Event | Adjustments | With Adjustments |
| Long Term | 2,483 | +724 | 3,207 |
| Short Term | 686 | +265 | 951 |
| Totals | 3,169 | +989 | 4,158 |

Additional parking of 724 vehicles was added to the long-term demand for state and federal employees working within the study area, but parking outside the study area. The additional parking demand of 75 vehicles for the Lincoln Children's Museum patrons parking outside of the study area and 190 vehicles for the Pershing Center weekday daytime event was added to the short-term demand.

The long term parking demand was then distributed block-by-block utilizing the employment/dwelling units per block, while the short-term demand was distributed utilizing the occupied floor area of retail, service, government, financial, insurance, transportation or utility building uses for each block. The adjustments of 724 vehicles for long term demand and 265 for short term demand were applied directly to the affected blocks.

Detailed distributions of the long and short-term demands can be seen in Figures 10 and 11, respectively. The surpluses/deficiencies by destination can be seen in Figure 12. A detailed table of the surpluses/deficiencies by destination, along with the adjustments can be found in the Appendix.




N

## Legend

**Number of Employees or Dwelling Units**

- 0 to 100
- 101 to 200
- 201 to 500
- 501 to 1000
- 1001 and Above

**Figure 8**
**East Downtown**
**Employee and Dwelling Unit Distribution**

KIRKHAM MICHAEL

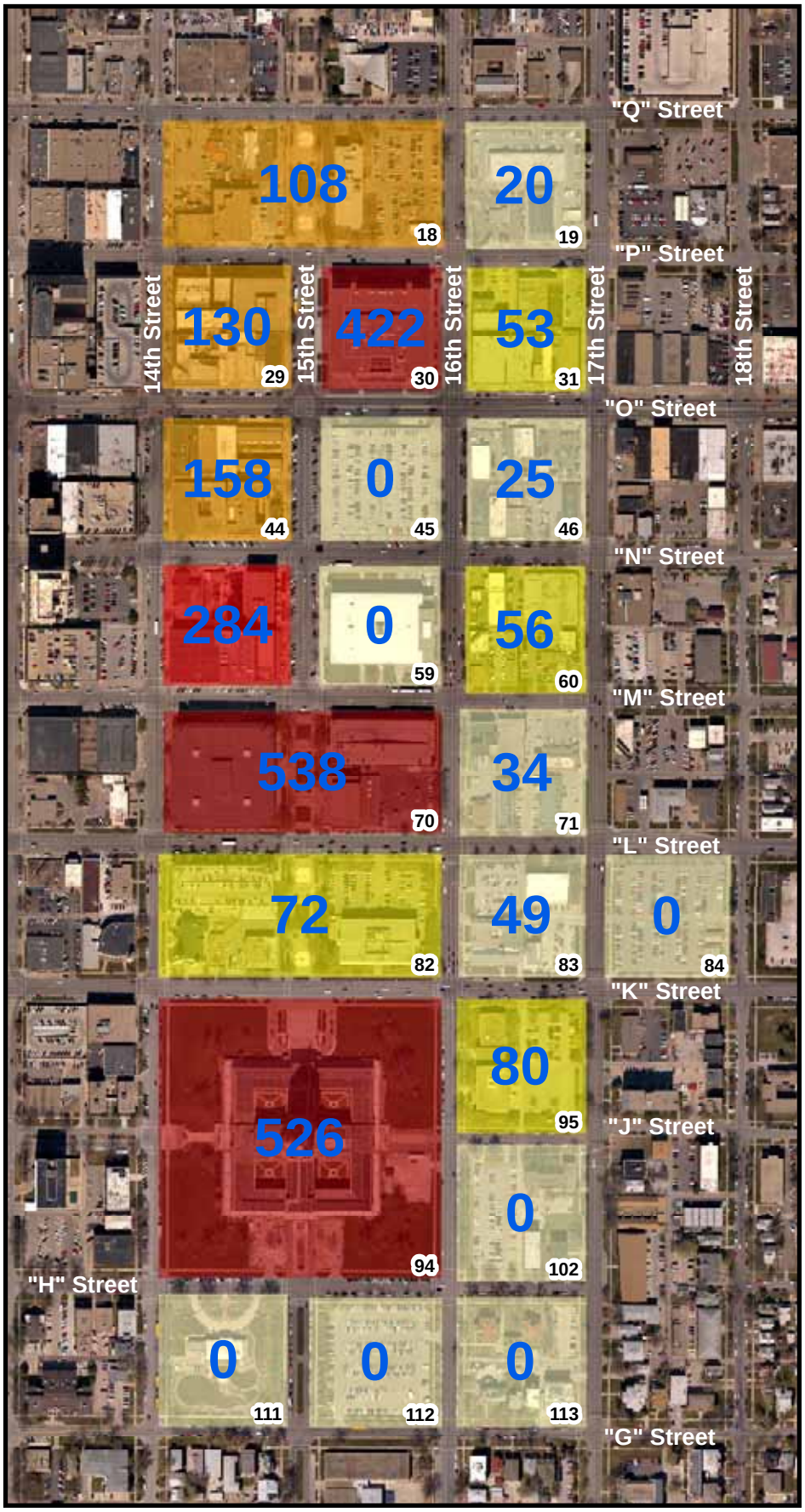



**Figure 9**
**East Downtown**
**Occupied Square Footage (/1,000ft$^2$)**

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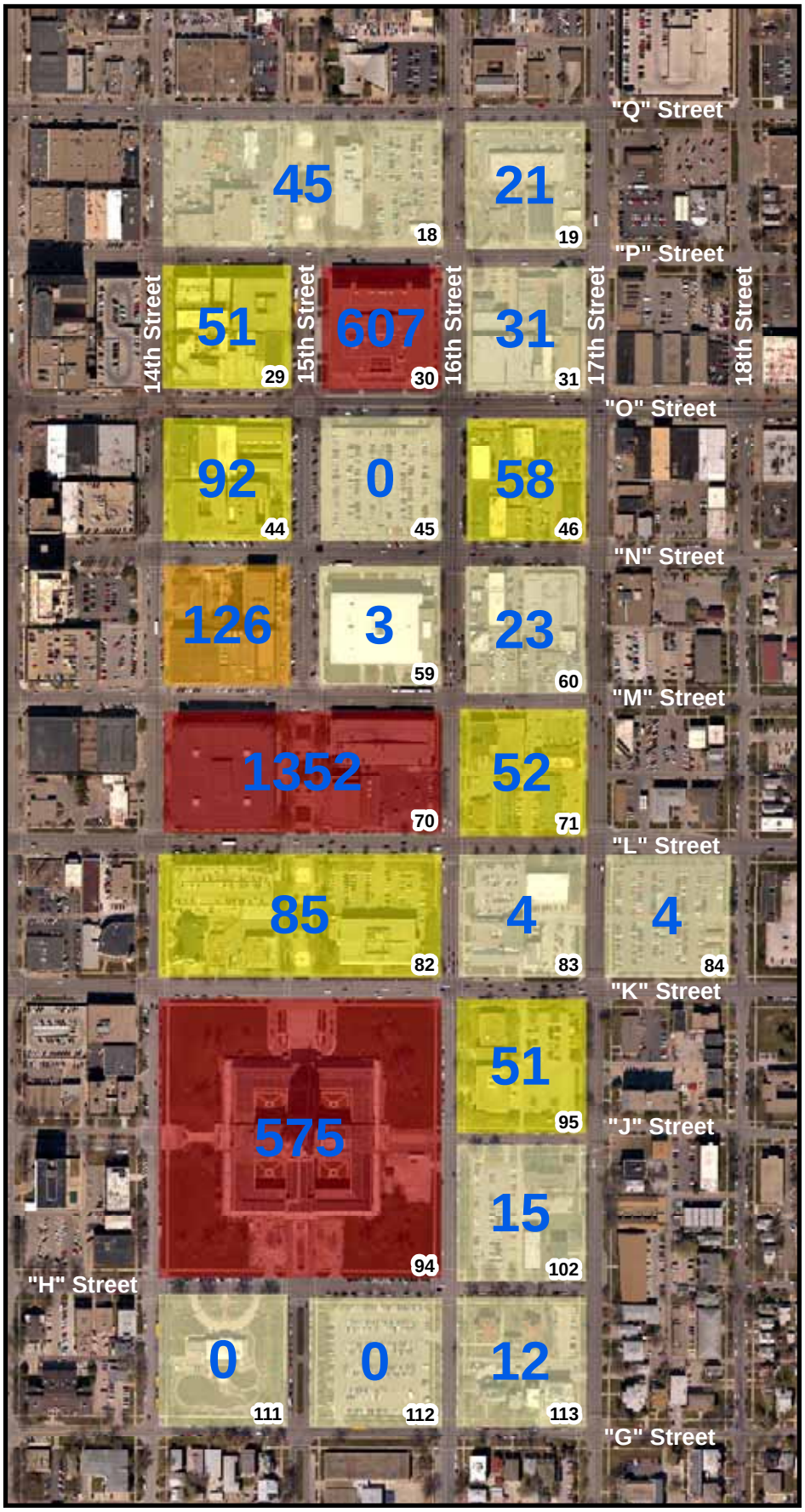


**Figure 10**
**East Downtown**
**Long Term Parking Demand (3,207)**

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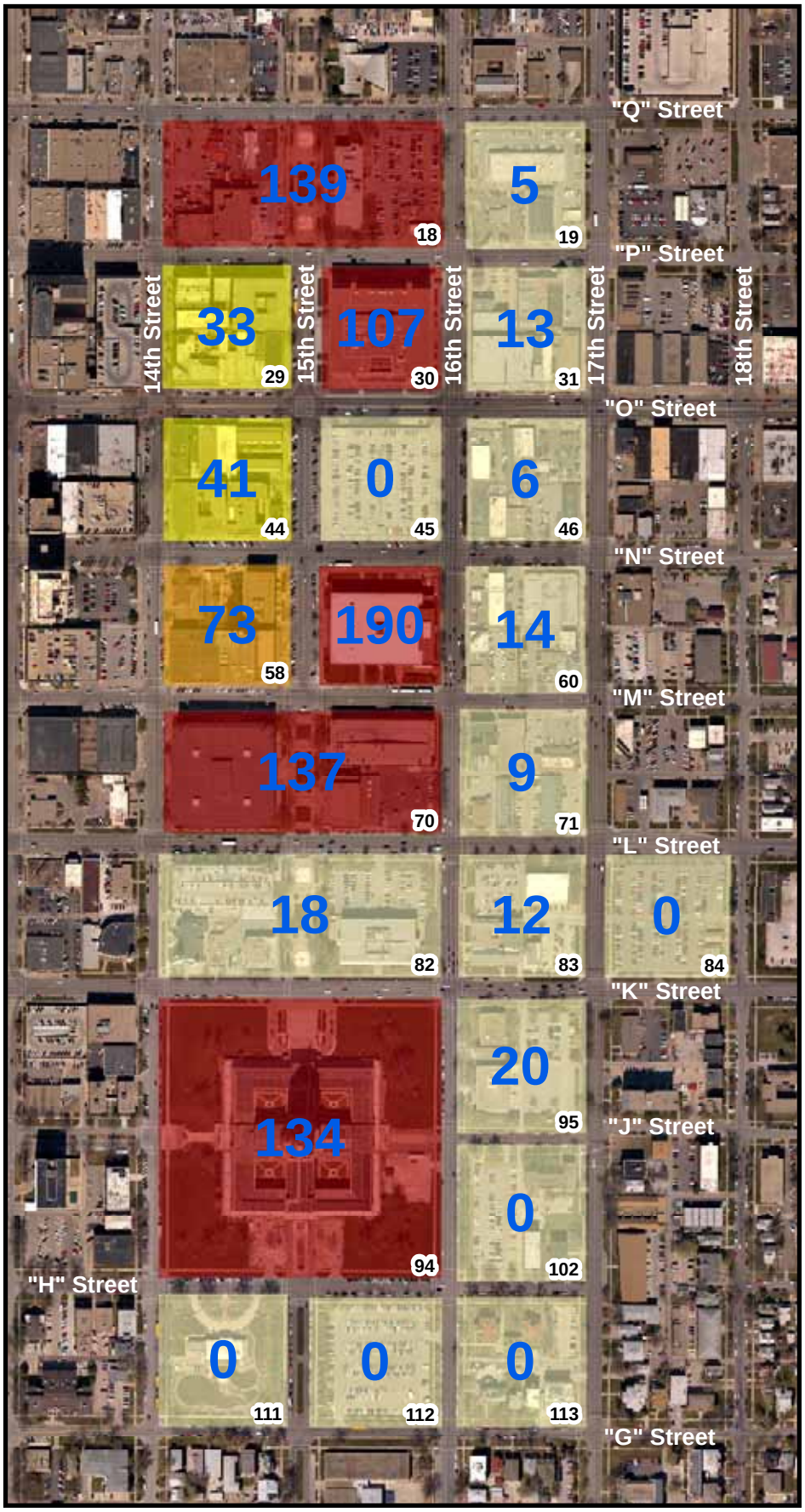


**Figure 11**
**East Downtown**
**Short Term Parking Demand (951)**

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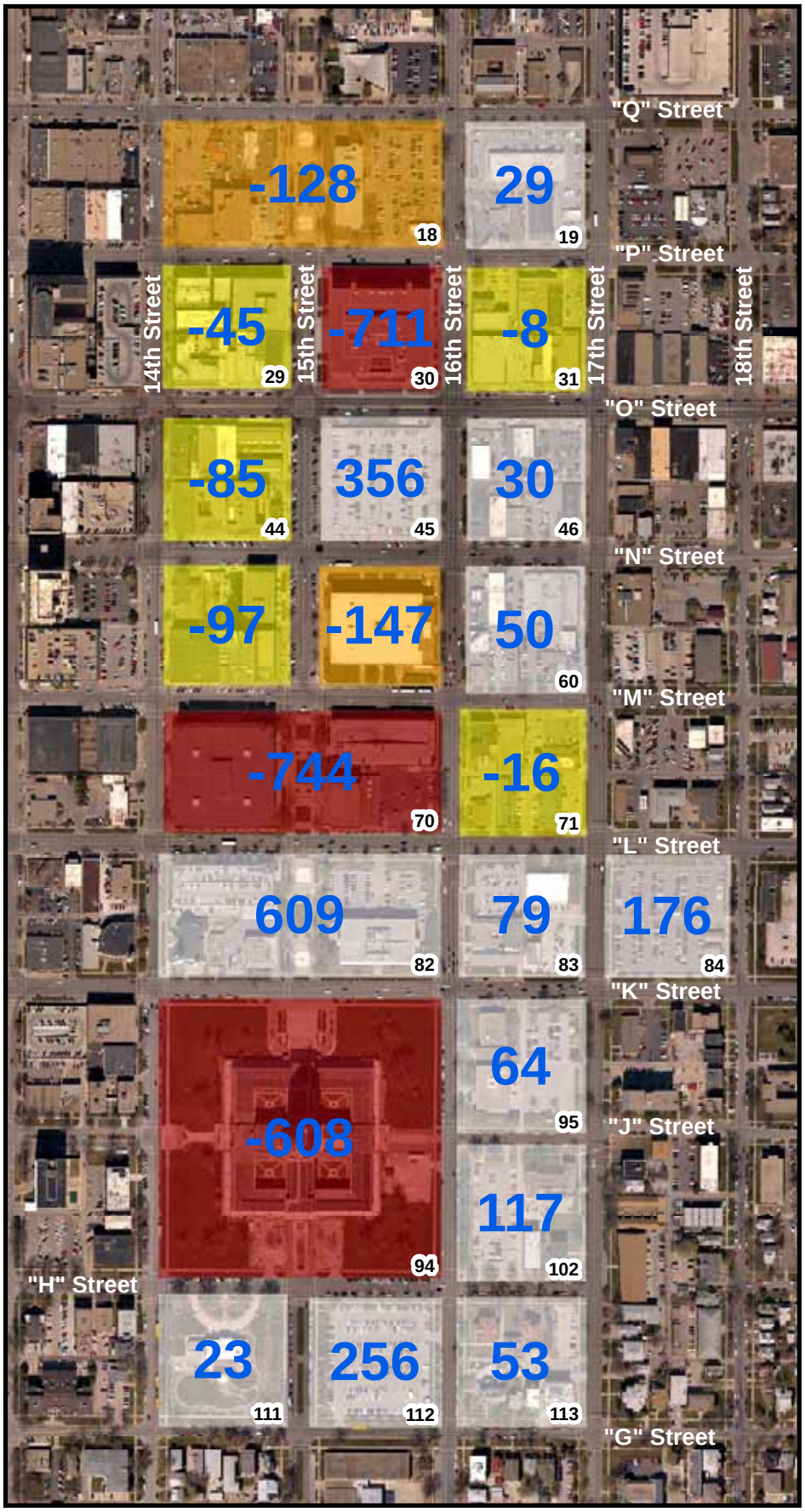


N

## Legend

**Surplus/Deficiency By Destination**

- -500 and Below
- -250 to -499
- -100 to -249
- -1 to -99
- Surplus

**Figure 12**
**East Downtown-2005**
**Adjusted Surpluses/Deficiencies By Destination (-747)**

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